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ABSTRACT

In order to develop a scientific theory of curriculum, a method for measuring the curriculum-related planning activity of teachers is proposed. This choice of focus is based on the assumption that a logical connection can be made between the level of teacher planning, the quality of the resulting actions, and the corresponding goal attainment by students. The level of planning activity is defined in terms of the quantity of decision making, the degree of involvement of other persons in the decision process, and the degree of formality of materials used in decision making. A self-report form is recommended, supplemented with the use of a multiple matrix sampling design. The method was devised to reduce the ambiguity of language used to describe curriculum decisions, the difficulty of retrospective recall over long periods of time, and the confusion of real versus psychological constructs. The sampling design and examples of self-report items are included. The self-reporting form focuses on decisions related to the planning stages of teaching, such as topics for individual study, classroom interest centers, and lesson plans. The items include general items, followed by source of information and types of decisions. (Author/JAC)

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Measuring the Level of Curriculum Activity in Schools

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An event which is frequently mentioned as a major milestone in the development of a field of curriculum inquiry is the conference on curriculum theory held at the University of Chicago in 1947. In an attempt to determine the degree of progress in the thirty years following that conference a group of curriculum leaders were assembled at the State University College of Arts and Sciences in Genesco, New York in 1976. Ralph Tyler, one of the organizers of the Chicago conference, commented at the later meeting that "today we continue to build curricula without comprehensive theory" (Tyler, 1977 p. 256). This view is not an isolated comment as a reading of the papers of the other curriculum leaders will demonstrate (Rosario and Demarte, 1977). In fact, there have been numerous challenges to the concept of theory guiding curriculum development. Perhaps the most well known of these is Schwab's (1970) challenge to the field of education to establish even the possibility of the development of curriculum theory.

There are many issues related to the lack of curriculum theory beyond the fundamental issue raised by Schwab of the inability of theory to represent the rich and particular acts of teachers and children. Some of the more important of these may be the confusion existing over the nature of theory and the lack of suitable methods of measurement of curriculum related phenomena. In respect to the first of these issues the development by Kliebard of forms of theory, which includes the distinction between normative and scientific theory, should help clarify the basic issues involved in an area such as curriculum where so much of what is done is concerned with value judgments (Kliebard, 1977).

In regard to the second problem, lack of suitable measurement, the

outlook is not as promising. This situation will have an adverse effect on efforts to develop scientific curriculum theory since measurement is an essential component of this mode of inquiry. With respect to the issue of measurement many different needs have been identified. There is a need, identified by the National Institute of Education Curriculum Development Task Force, for better methods of assessment of the goals of education (Schaffarzick and Sykes, 1977, p. 4). The type of measurement referred to by this task force is frequently called outcome assessment or product evaluation. In addition, there are calls for the development of measurement procedures which would clarify the nature of the processes involved in schooling. For example, field studies, which focus on the day to day processes within schools in the form of interactions between teacher, students, administrators, and their environment have been identified by educators as a major need (Cicourel, 1975).

Purpose of the Project

These comments concerning the slow development of curriculum theory, the recognition of a branch of this theory which is scientific in nature, the need for measurement in this mode of inquiry, and the need to look at processes in the schools, taken together constitute the basic motivation for the developmental work described in the present report. The purpose of the present project was to develop a method of measurement of the level of curriculum related decision making planning activity of teachers.

Curriculum related decision making was selected as a focus for the project because of the desire to generate data which would be used in the development of scientific curriculum theory. Teachers were selected

since their decision making is closely related to the curriculum as it is experienced by students.

The explanation of the selection of the concept of level of planning activity is a more complex matter which rests upon a central assumption. It is assumed that a logical connection can be made between the level of teacher planning, the quality of the resulting actions, and the corresponding degree of goal attainment by students. These links are not posited as necessary conditions but they are advanced as sufficient conditions. In addition, they are not viewed as single causes but as members of a set of multiple causes. Of the three elements in this logical chain, level of teacher planning activity was selected for a number of reasons. Goal attainment is more of a product measure and while the ultimate aim of the school may be reflected in this category the impact of various day-to-day processes upon goals may well be so diffuse as to obscure relationships. This sort of situation is not conducive to theory development. The middle category of quality of actions taken is obviously important but the value issues related to judgments of quality are difficult to handle scientifically and are too dependent upon a basic conceptual orientation to curriculum. For example, the quality of an action based on a curriculum decision which represents a prespecification of common learner behaviors would not be considered high from a humanistic perspective of curriculum (Macdonald, Wolfson, & Zaret, 1973). This dependence upon orientation to curriculum would make generalization of findings very difficult. The quality of curriculum actions would be more appropriate as a point of focus for normative theory. On the other hand, the level of curriculum planning activity could be expected to have the

same positive relationship to quality of resulting actions and thus to goal attainment regardless of the particular conception of curriculum an individual teacher or group of teachers may have. This positive relationship is based on the assumption that considered decisions tend to lead to better actions, that is, that the quality of actions are directly related to issues such as the time spent in deliberations, the degree of involvement with others in examining alternatives and justifications and the degree of formality involved in the decision situation.

Level of Curriculum Activity

Components of the Index of Level of Activity. The concept of level planning activity was initially defined in terms of three components, quantity of decision making, degree of involvement of others in decision situation, and degree of formality in the material used in the decision situation. These three components were selected since they seem to represent different aspects of decision situations which are related to the concept of consideration, the mediating factor between level of activity and quality of decision making. Quantity, the first of the three components, was defined in terms of time spent in a decision situation. This definition resulted in the creation of a continuous variable which could be used in this form or could be treated as an ordinal characteristic through the device of cutoffs points. The second component, degree of involvement of others in the decision situation, was defined as an ordered variable. The two levels of involvement considered were individual actions, representing no involvement, and interactions with one or more persons, representing involvement. The final component of level of curriculum activity was defined as an ordered variable with two levels,

decision situations in which no written material was consulted, and situations in which written material was consulted. These two levels constituted the measure of the degree of formality of material used in a decision situation.

The three components were selected to represent related elements which could be combined into an overall index of level of activity. The components were defined with the expectation that they would meet the criteria for a Guttman scale, that is, they were unidimensional measure of the single concept of level of activity and that they were ordered in a cummulative sense. This assumption can be verified through the use of scalogram analysis using the Guttman scale subprogram of SPSS (Nie, Hull, Jenkins, Steinbrenner & Bent, 1970, Ch. 26). If the measures do meet the required assumption an overall index can be obtained by summing the scale values for the three components.

Basic Method of Measurement. The level of curriculum related decision activity could logically be assessed either by direct observation or by self report using some form of questioning technique. Observation was discarded as an approach due to the extreme demands made on time and resources by the technique.

Previous attempts to measure the level of curriculum related decision activity through the use of self reports have not been satisfactory because of at least three major problems. These are the ambiguity of language used in the curriculum field with the resulting problems of identification of relevant decision situations, the second general problem of retrospective techniques involving recall over an extended time period which results in error induced by memory deficiencies, and the

confusion of real versus psychological constructs such as the confusion mentioned by Mohr (1975, Pp. 17, 18) between actual participation and degree of participation expected in a given school situation. If these three problems could be handled in some acceptable fashion, self report would offer much promise as a measurement technique since it would permit broader coverage in samples and would permit the inclusion of the categories of reflection over personal experiences, a major form of informal individual decision making in school contexts, which could not be handled if direct observation were used as the method of measurement.

The three problems mentioned could all be handled if a large number of very specific statements describing curriculum decisions were used and if the period of retrospection could be limited in duration. The limitation of the period of retrospection would reduce problems in recall since individuals would be directed to reflect over specific, short periods of time. Also, by keeping the period of time short the possibilities of confusing real with a psychological sense of time spent in curriculum decision situations should be greatly reduced. Finally, by using a large set of items related to curriculum decision each can be described in specific detail and the problems of ambiguity of language can be significantly reduced.

While theoretically possible, attempting to actually use a large set of questions related to a large number of specific time periods would simply overburden the respondents. However, both of these things could be done with some form of multiple matrix sampling (Shoemaker, 1973). This relatively modern approach, for which the initial work in the necessary statistical foundation dates from approximately 1968, is based on a two dimensional sampling plan rather than the traditional

sampling of only one dimension of a target data matrix. In many educational applications of this technique sampling is done across the dimensions of test items and examinees. However, the technique is generalizable to any two dimensions. In the present case it would be possible to sample decision items and events, teacher-time combinations, over a school year and estimate responses over all items for all events. This approach would effectively handle the problems mentioned previously since each subject would be presented with descriptions of specific decisions made during specific narrowly defined periods of time for which valid responses should be possible.

Curriculum Decisions Items. One of the decided advantages of ambiguity of language in the field of curriculum is the sense of openness it creates among practitioners and the possibilities for diverse inquiry which this openness stimulates. Disadvantages of division in the field over defintion are probably felt most strongly in scientific inquiry where reproducability of results or replication of studies and generalization across studies are so important. In the case of the present project some characteristics of general and specific definitions of curriculum were desired.

A guiding thought in the development of the measurement instrument is that expressed by Foshay (1975).

> In these times, in which the two contradictory traditions of essentialism and child-centeredness appear to have resumed their old tension, we would do well to take such a comprehensive view of what "the curriculum means that definition, in the usual sense, is not fruitful (p. 172).

Since the purpose of this project was to produce a method of measurement which could be used in a variety of studies it was necessary, as indicated, to base the instrument on decisions which are consistent

with rather broad definitions of curriculum. However, since the instrument was designed to contribute to scientific inquiry in curriculum it had to contain decisions which were somewhat specific. To satisfy both demands it was decided to use definitions which incorporate elements of two major perspectives in the field, humanism and an ends-means orientation, and to restrict elements taken from these definitions to planned components rather than lived on experienced elements of schooling. Thus it was desired that the decisions used in the instrument conform to notions of curriculum presented by scholars such as Ralph Tyler, John Goodland, and Mauritz Johnson who propose an ends-means orientation, and James Macdonald, Dwayne Huebner and Elliott Eisner who advocate a humanistic approach to curriculum. At the same time it was decided to omit consideration of what actually happened during encounters with students, since this activity would require some form of measurement other than self report from teachers, and to concentrate on decisions related activities made in the planning stages of teaching.

The following list represents the types of decisions which were included in an initial version of the measurement instrument.

201 TO IDENTIFY A TYPE OF DESIRED STUDENT LEARNING.
202 TO DETERMINE WHAT STUDENTS SHOULD LEARN.
203 TO DECIDE WHAT STUDENTS SHOULD BE TAUGHT.
204 TO SELECT DESIRED OUTCOMES IN TERMS OF STUDENT BEHAVIOR.
205 TO DETERMINE THE ATTRIBUTES FOR WHICH TEACHERS SHOULD ATTEMPT TO SERVE AS MODELS FOR STUDENTS.
206 TO IDENTIFY DIFFERENT FORMS OF OPTIONAL CONTENT TO BE PROVIDED STUDENTS DURING CLASS TIME.
207 TO IDENTIFY DIFFERENT FORMS OF OPTIONAL STUDENT ACTIVITIES TO BE PROVIDED DURING CLASS TIME.
208 TO CLARIFY THE DECISIONS ALLOWED TO STUDENTS AND TEACHERS DURING CLASS TIME.
209 TO DETERMINE AREAS FOR WHICH STUDENTS AND TEACHERS HAVE RESPONSIBILITIES.
210 TO IDENTIFY DIFFERENT FORMS OF OPTIONAL CONTENT TO BE USED DURING CLASS TIME IN ORDER TO STIMULATE THE TEACHERS PERSONAL GROWTH.

211 TO DEFINE WAYS IN WHICH STUDENTS AND TEACHERS CAN HAVE INTERPERSONAL INTERACTIONS.
212 TO SELECT TOPICS FOR INDIVIDUALS TO PURSUE WHICH ARE NOT OF INTEREST TO THE REST OF THE CLASS.
213 TO EXPLORE OPTIONS WITH RESPECT TO THE PREDETERMINED TEACHER STUDENT ROLES IN THE CLASSROOM.
214 TO FIND SUGGESTIONS OF CONTENT TO SERVE AS THE FOCUS FOR CLASSROOM ACTIVITY.
215 TO FIND EXAMPLES TO ILLUSTRATE PARTICULAR CONCEPTS OR RELATIONSHIPS.
216 TO IDENTIFY PARTICULAR ARTEFACTS OBJECTS OTHER THAN AV EQUIPMENT, THAT CAN BE SEEN AND FELT, SUCH AS ART OBJECTS, LITERARY WORKS, HANDCRAFTS, ETC. TO USE AS A FOCUS FOR CLASSROOM ACTIVITY.
217 TO IDENTIFY SUBJECT MATTER FOR CLASS PRESENTATIONS.
218 TO SELECT AREAS OF INVESTIGATION IN AND OUTSIDE OF THE SCHOOL AS FOCAL POINTS FOR STUDENT INVESTIGATION.
219 TO IDENTIFY INTEREST CENTERS TO USE IN THE CLASSROOM.
220 TO SELECT EXAMPLES OR INSTANCES WHICH ARE NOT IN THE TESTBOOKS OR CURRICULUM GUIDES TO CLARIFY OR ILLUSTRATE CONTENT.
221 TO IDENTIFY CULTURAL CONCERNS SUCH AS COMMUNICATION, WORLD OF WORK, POLLUTION, POVERTY, ETC. AS A THEME FOR STUDENTS TO INVESTIGATE.
222 TO SPECIFY THE ORDER IN WHICH DIFFERENT CLASS PRESENTATIONS WILL OCCUR.
223 TO DECIDE ON A PARTICULAR SEQUENCE OF LEARNING OUTCOMES.
224 TO ASSIGN DIFFERENT TOPICS TO VARIOUS GRADE LEVELS OR COURSES.
225 TO COORDINATE YOUR EXPECTATIONS OF STUDENT LEARNINGS RELATED TO A PARTICULAR TOPIC.
226 TO DETERMINE THE DEPTH OF STUDENT LEARNINGS RELATED TO A PARTICULAR TOPIC.
227 TO SET STANDARDS OF PERFORMANCE FOR STUDENT WORK.
228 TO ASSIGN GRADES TO STUDENTS.
229 TO DETERMINE CRITERIA FOR STUDENT MASTERY OF A DESIRED OUTCOME.
230 TO DETERMINE GUIDELINES FOR ASSESSING STUDENT BEHAVIOR.
231 TO DETERMINE THE QUALITY OF THE SCHOOL ENVIRONMENT.
232 TO DETERMINE THE QUALITY OF THE STUDENTS DEVELOPMENT.
233 TO DETERMINE THE QUALITY OF THE TEACHERS PERSONAL DEVELOPMENT.
234 TO DETERMINE THE QUALITY OF STUDENT LIFE HAPPINESS, SOCIAL FULFILLMENT, ETC.
235 TO DETERMINE THE QUALITY OF TEACHER LIFE HAPPINESS, SOCIAL FULFILLMENT, ETC.
236 TO PLAN ON AMOUNT OF TIME TO ALLOCATE TO DIFFERENT TOPICS OR ACTIVITES.
237 TO SCHEDULE TESTS.
238 TO DEVELOP A TEST.
239 TO SELECT ITEMS FOR A TEST.
240 TO WRITE A LESSON PLAN.
241 TO SELECT A SITE FOR A FIELD TRIP.
242 TO DECIDE HOW MUCH TIME TO ALLOCATE TO A TOPIC.
243 TO DETERMINE THE SEQUENCE OF PRESENTATION OF VARIOUS TOPICS.

Sources of Decision Related Information. In order to build the index of level of planning activity there are three aspects of the listed curriculum decisions which have to be assessed. These are time spent with the decision, degree of involvement with others, and degree of formality of the materials used. The first component requires no further information other than the listing of decision. To assess the other two components it was necessary to determine the source of information used by teachers during planning activities. For example, it was necessary to know if a teacher had talked with a colleague to determine the sequence of topics for presentation to students or if the teacher had examined the textbook to make this determination. The fact that the teacher made a decision about sequence identified the activity as related to curriculum. The degree of involvement and formality could be determined by examining the nature of the source of information used. The list of sources of information used in the measurement instrument represent an initial attempt to exhaust the logical possibilities.

The following list represents the types of decisions which were included in an initial version of the measurement instrument.

101 USE THE TEACHERS GUIDE OR TEXTBOOK
102 ENGAGE IN INFORMAL DISCUSSION WITH OTHER TEACHERS
103 MEET WITH A FORMAL COMMITTEE
104 DISCUSSION DURING A FACULTY MEETING IN ORDER
105 USE A CURRICULUM GUIDE
106 CONSULT SCHOOL HANDBOOK OR POLICY MANUALS
107 TALK WITH THE PRINCIPAL
108 TALK WITH A SUPERVISOR
109 READ YOUR OWN PERSONAL REFERENCE MATERIAL
110 ATTEND A UNIVERSITY COURSE
111 ATTEND A CONFERENCE OR WORKSHOP
112 DISCUSSION WITH FAMILY OR FRIENDS
113 EXAMINE CATALOGUE OR LISTINGS OF AV MATERIALS
114 DISCUSSION WITH YOUR STUDENTS PARENTS
115 USE LIBRARY RESOURCES
116 HOLD DISCUSSIONS WITH STUDENTS

117 HOLD DISCUSSIONS WITH COMMUNITY PERSONS
118 MEET WITH SCHOOL SYSTEM RESOURCE OR SUPPORTIVE PERSONNEL
119 READ PROFESSIONAL JOURNALS
120 CONDUCT A PREASSESSMENT OF STUDENTS KNOWLEDGE, SKILLS, OR ATTITUDES
121 SURVEY COMMUNITY RESOURCES
122 HOLD DISCUSSIONS WITH A TEACHER AIDE
123 EXAMINE STUDENT WORK
124 ATTEND A SCHOOL BOARD MEETING
125 TALK WITH A DEPARTMENT OR GRADE CHAIRMAN
126 USE STANDARDIZED TEST RESULTS
127 USE RESULTS FROM TEACHER MADE TESTS OR SURVEYS
128 REFLECT OVER PERSONAL EXPERIENCE
129 EXAMINE INTUITIVE FEELINGS

Combination of Sources and Decisions. Since one important technique used in the present project involved the presentation of very specific items to respondents in order to reduce problems caused by inaccurate recall in retrospective self report type instruments it was decided to match each of the listed decisions with each of the listed sources of information in order to generate an item data rank of approximately 1200 items. Thus each item consists of a general item followed by a source of information and a type of decision. The general form is:

> During (specified time period) did you (use a specified source of information) (to make a particular curriculum related planning decision)? If yes, approximately how much time did this require?_____

An example of a specific item, as used in the actual measurement process would be :

> During the period of 8 to 8:15 a.m. today did you use the teacher's guide or textbook to identify a type of desired student learning? If yes, approximately how much time did this require? _____

Event Item Sampling Design, An Example

In order to make self report a viable measurement approach the present project was designed to permit the presentation of very specific items involving a given teacher during a limited time period. Since the

combination of items and events, a teacher-time combination, is quite large some form of sampling across both of these dimensions would be desirable. To accomplish this it is necessary to use some form of multiple matrix sampling design. The actual nature of the design should not be confused with other sampling designs used within the overall context of a research report. For example, an initial use of the instrument was planned in a study of the relationship between organizational characteristics of a school and the level of curriculum planning activity. This study will be used in the remainder of the discussion to illustrate the use of the curriculum planning activity measurement technique. In this case the basic unit of analysis was a school. For this reason it would be necessary to include three distinct sampling designs in the investigation, one to select schools from a given population, one to select teachers within a school, and a multiple matrix sampling design for each school covering the event and item dimensions. The item dimension of the multiple matrix design contains the approximately 1200 items previous described. The event dimension, a teacher-time combination, is variable dependent upon a researcher's project but will be illustrated with a recommended unit of 15 minutes covering the time of 7 a.m. to 10 p.m. for a period of 30 school days for a total to ten teachers. This will result in an event list of 19,200 individual units. The period of 7 a.m. to 11 p.m. is recommended since it covers both in-school instructional time and additional time which frequently must be used by teachers for planning purposes. The decision to use 30 days is based on the need to obtain a representative picture of teacher's activity. Ideally this period probably should be consistent with the

entire regular school year.

The sampling from the time and events dimensions should be accomplished without replacement. The actual procedure recommended for both dimensions is proportional stratifications. The event dimension could be stratified by teachers and time with time strat defined as 7-9 AM, 9 AM - 3 PM, 6-8 PM, and 8-11 PM. The item dimension could be stratified by type of curriculum decisions.

Finally, the complete multiple matrix sampling plan is defined when the values of (t/k/n), where t = number of subtests, k = number of items per subtest, and n = number of observations or events, are fixed (Shoemaker, 1973). Since there is not sufficient information to estimate the parameter required to match the sampling design with desired confidence interval estimate widths, the general rules given by Shoemaker (1973, pp. 21, 21) were to specify a sampling plan of (240/10/900). In this case the value of 900 represents 10 teachers measured during three 15 minute periods per day on each of 30 days. Using this sampling plan and the estimation procedure developed by Shoemaker an overall mean on the index of the level of curriculum planning activity per school can be obtained. This mean can be used as a unit of analysis in any further analysis of the relationship between organizational features of a school and the level of curriculum planning actively.

Future Plans

At the present time the proposed method of measurement is untested. While the basic approach seems sound, the issues of reliability and validity have not yet been examined. In addition, field work to

determine the feasibility of the proposed method needs to be completed. Issues such as readability of items and realism of demands on teacher's time must be examined. Finally, a computer program will have to be written to handle the sampling and generation of subtests required in the proposed sampling design.

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